

Cedar Tree Revetment Stream Bank Stabilization Project Santee Sioux Tribe of NE

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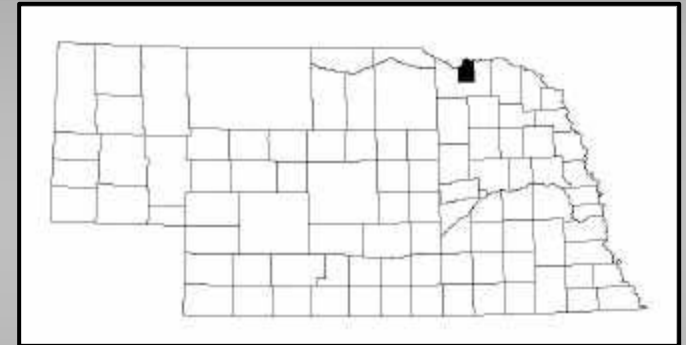
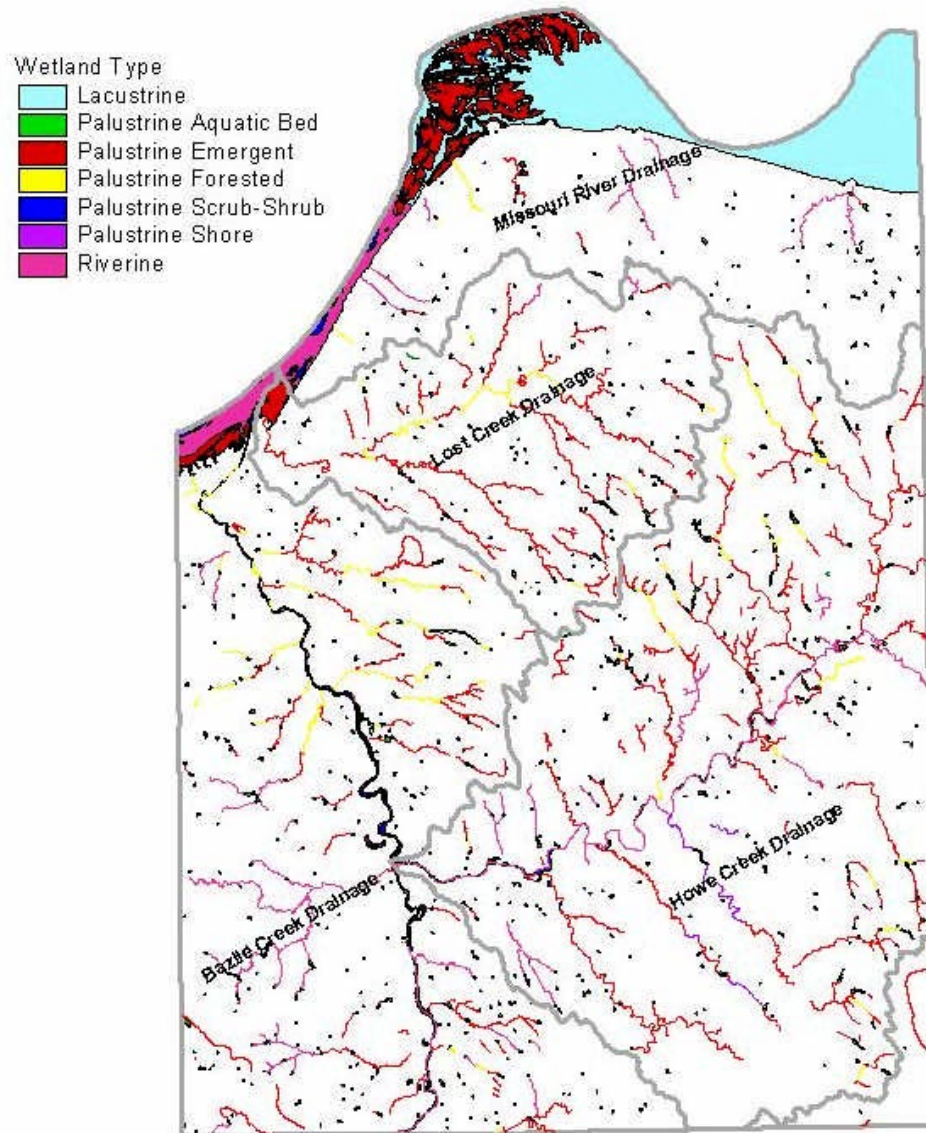
Ralph Davis, Amanda Wilson

University of Arkansas

Background

- Wetlands program established in 1993.
- 3rd wetlands project.
- Funded under a grant from U.S. EPA.

Location of Santee Sioux Reservation



Project Objectives

- Reduce/minimize stream bank erosion.
- Protect downstream tribal lands.
- Provide environmental outreach, (public and educational).
- Increase coordination with other agencies and landowners.

Project Coordination

- Local Landowners (Non-Indian/Indian)
- Natural Resource Conservation Service
- Nebraska Game & Parks Commission
- U.S. EPA

Revetment Project

- Site assessment.
- Base-line elevation data.
- 1100 foot structure.
- Cross-sectional data.
- Collection of materials.
 - Cedar trees.
 - Steel posts.
 - Aircraft cable.

Revetment Project/cont.

- Recruitment of volunteers.
- Riparian buffer.







Environmental Education

- **Outreach.**

- **Educational institutions.**
- **Local, state, federal agencies.**
- **Tribal.**

Problems Encountered

- Flood of 1999.
- Revetment structure damage.
- Riparian buffer damage.





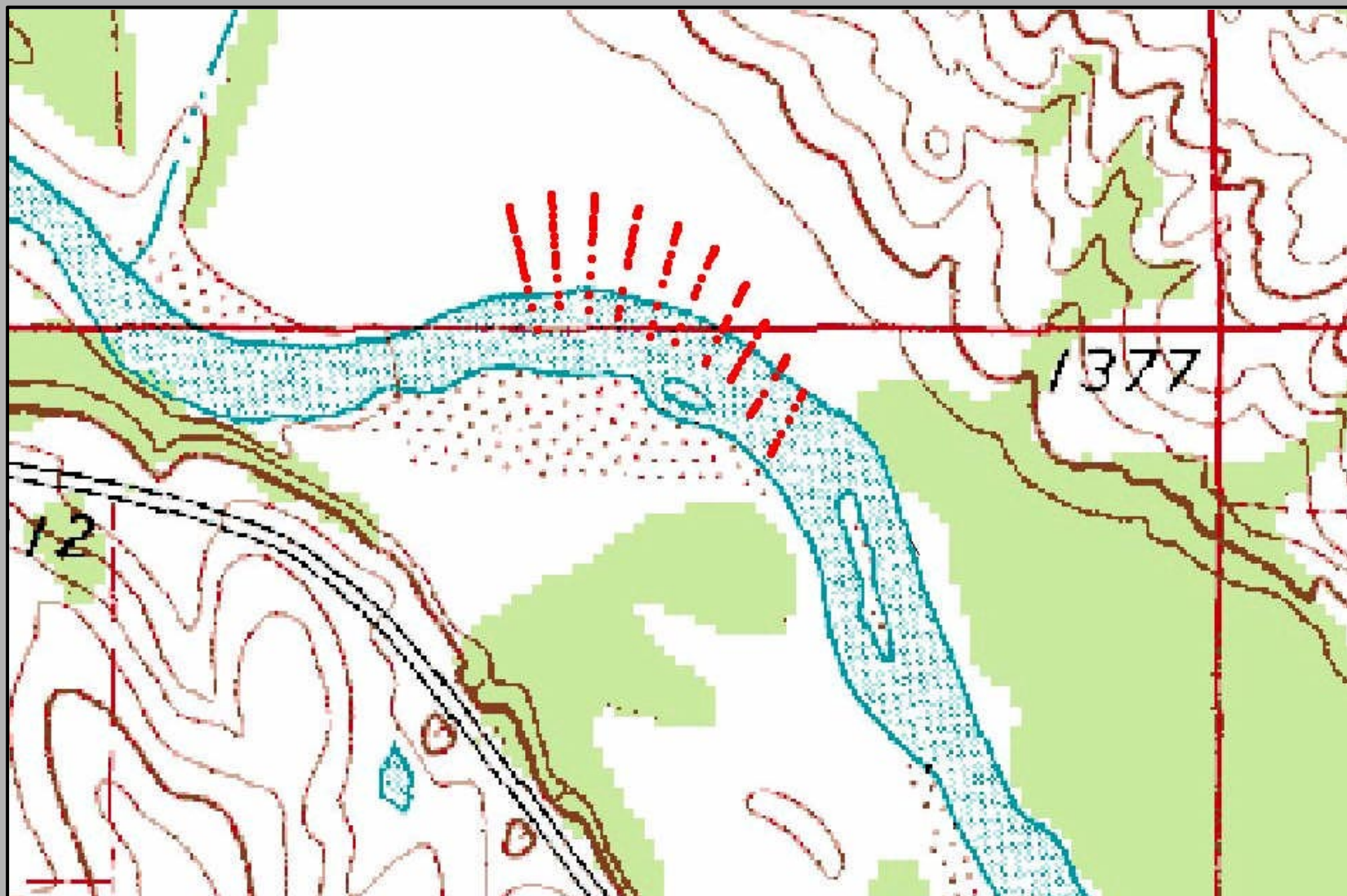
Post-flood Efforts.

- **Revetment structure repair.**
- **Replant riparian buffer.**
- **Cross-sectional data.**
- **GPS data.**
- **GIS mapping.**

Incorporating Geographic Information System (GIS) Applications.

GIS

- ArcView 3.2 and 3D Analyst extension.
- 1997-99 cross-sectional data transferred to electronic format .
- ArcView shapefiles created.



August 1999 cross-sectional data on 1973 DRG

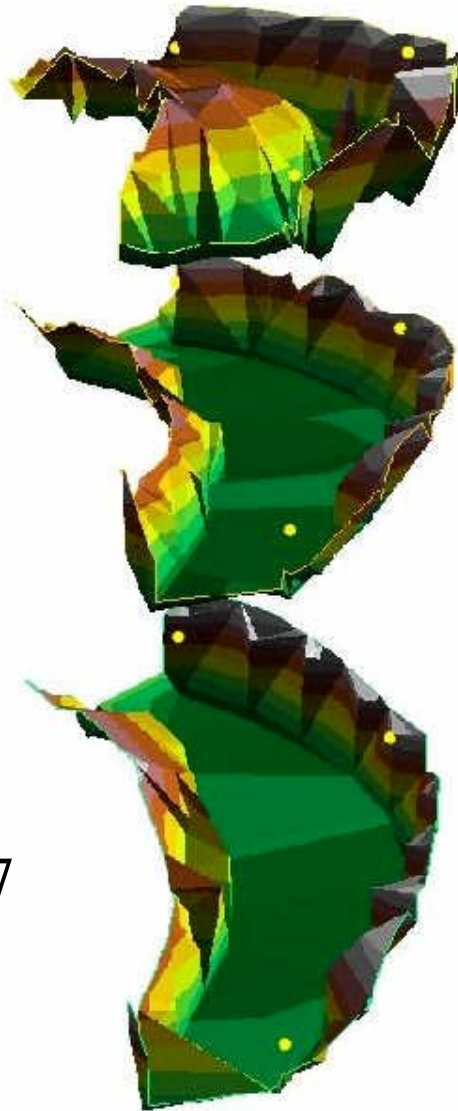


August 1999 cross-sectional data on 1993 COQQ

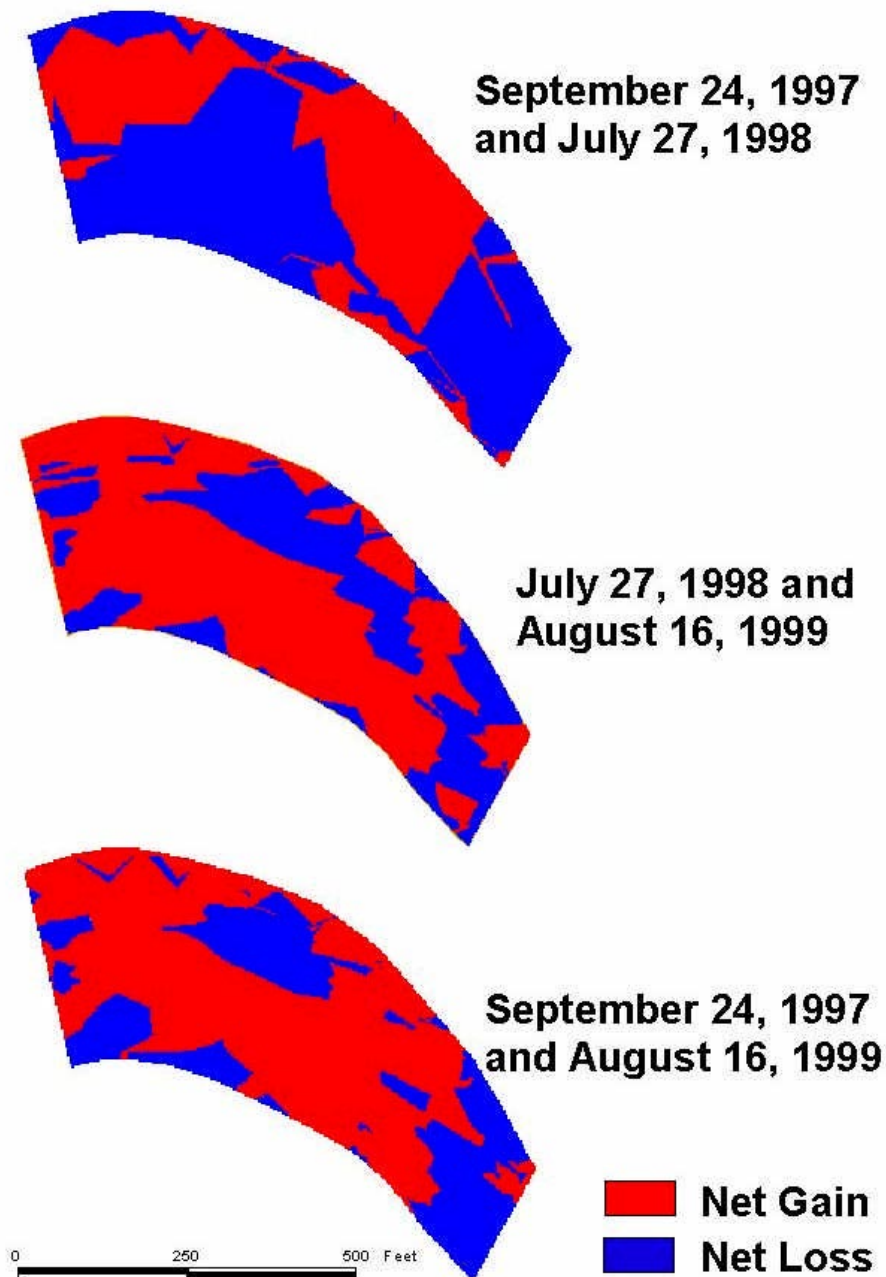
August 1999

July 1998

September 1997



X, Y, & Z coordinates used to create triangulated, irregular network (TIN) using ArcView's 3D Analyst



Cross sections for different years compared using Cut-Fill tool in 3D Analyst.

Benefits

- **Bank stabilization.**
- **Land-use practices.**
- **Educational component.**